

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
8 July 2004 (08.07.2004)

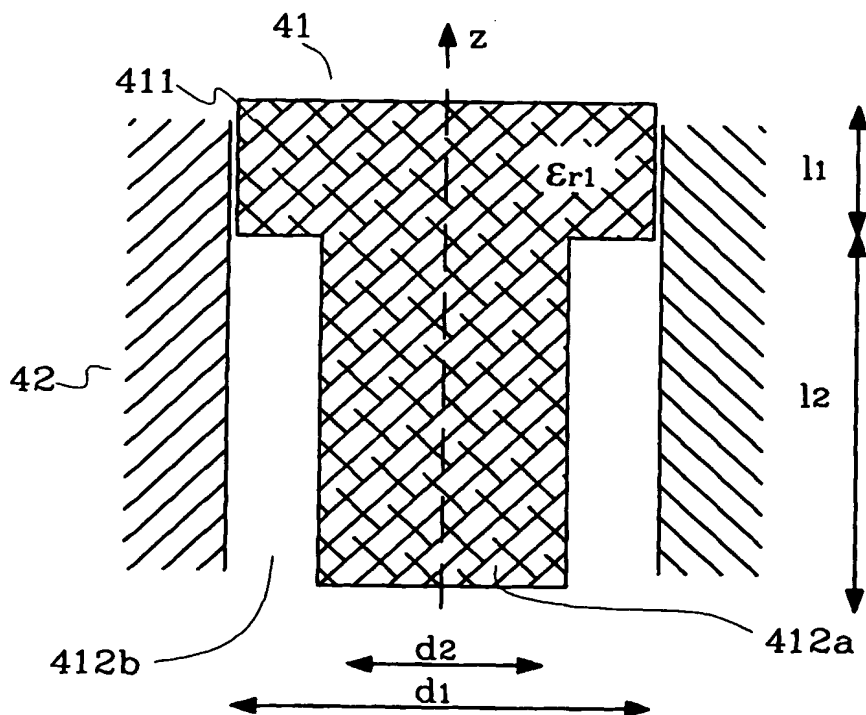
PCT

(10) International Publication Number  
**WO 2004/057696 A1**

- (51) International Patent Classification<sup>7</sup>: **H01P 7/10** (74) Agent: MAGNUSSON, Monica; Ericsson AB, Patent Unit Radio Networks, S-164 80 Stockholm (SE).
- (21) International Application Number: PCT/SE2002/002451 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 23 December 2002 (23.12.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (71) Applicant (*for all designated States except US*): TELEFONAKTIEBOLAGET LM ERICSSON (publ) [SE/SE]; S-164 83 Stockholm (SE).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): JEDRZEJEWSKI, Piotr [PL/SE]; Mäster Simons väg 21, S-170 66 Solna (SE). HENNINGSSON, Uno [SE/SE]; Klingvägen 17, S-136 73 Haninge (SE). AHLBERG, Christer [SE/SE]; Oxbacksvägen 40, S-730 40 Kolbäck (SE).
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report

[Continued on next page]

(54) Title: TUNING ARRANGEMENT



(57) Abstract: The present invention relates to an improved tuning arrangement to linearise the sensitivity to frequency changes within a certain frequency range in response to tuner displacements relative to a resonator body. The tuning arrangement comprises a tuner and/or resonator having a non-uniform distribution of the effective dielectric permittivity along the axis of tuner displacement. The non-uniform distribution of the effective dielectric permittivity is realised by subdividing the tuner into an arbitrary number of sections, each of which distinguishable at least by their geometrical shape and the value and distribution of the dielectric coefficient  $\epsilon_r$ .



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*